

Claims 25-40. (Cancelled)

41. (New claim) An integrated paper having active particles immobilized therein, said integrated paper comprising of:

a plurality of fibers fibrillated at a temperature greater than about 30°C, wherein said fibrillated fibers have an average fiber diameter of less than about 1000 nm; and

active agents selected from the group comprising metals, metal salts, metal oxides, alumina, silicates, ceramics, zeolites, carbon, activated carbon, diatomaceous earth, activated bauxite, fuller's earth, calcium sulfate, titanium dioxide, magnesia, magnesium hydroxide, magnesium oxide, manganese oxides, iron oxides, perlite, talc, clay, bone char, calcium hydroxide, calcium salts, or combinations thereof;

wherein said integrated paper has a mean pore size of less than or equal to about 2microns and includes a microbiological interception enhancing agent comprising a cationic material having a counter ion associated therewith when exposed to an aqueous biologically active metal salt solution forms the colloidal metal precipitate that precipitates onto at least a portion of the surface of at least some of the nanofibers and/or active agents.

42. (New Claim) The integrated paper of claim 41 where in said colloidal metal precipitate silver-amine-halide complex.

43. (New Claim) The integrated paper of claim 41 where in said fibrillated fibers have an average diameter of less than or equal to 250 nm and a length of 1mm to about 8 mm.

Remarks

Applicant respectfully requests that the foregoing amendment be entered. The claims that have been amended are properly identified as "Currently Amended" where amended. Claims 25-40 are shown as cancelled in view of the election to prosecute claims 1-25. New claims are shown as "New".

Objection to Claims 1-8

The Examiner has objected to claims 1- for the reasons:

"4. Claims 1-8 are objected to because of the following informalities: in claim 1 the Markush group is improper, i.e., it should include the phrase "selected from the group" before the word "comprising." Appropriate correction is required. "

Claim 1 has been amended to include "selected from the group" as noted by the Examiner. This language has also been included in new independent claim 41.

Grounds for Rejection:

The Examiner rejected claims for the following reasons:

"5.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action: A person shall be entitled to a patent unless - (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States. Claims 1, 4-8, 11-13 and 20-25 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over by US Patent Nos. 4,904,343, ('343), 4,565,727, ('727) to Giglia et al., or 4,929,502, ('502) or EP 145849 A1, ('849) to Giglia, hereafter referred to as "Giglia." Giglia teaches an integrated paper comprising fibrillated fibers and a particle immobilized therein, see abstract. Giglia teaches that the paper can be formed using the wet lay technique, resulting in a novel absorbent fabric, having a caliper between of at least 0.005 inch, high absorptive capacity to weight ratio and high porosity to fluid flow, column 3, lines 19-25 of the '727 patent; column 3, lines 20-26 of the '343; column 6, lines 38-44 of the '502 and page 4, lines 1-14, of the '849 patent. Giglia also teaches that the paper can be used to make filters or combined with another filter surface, e.g., a carbon block, column 4, lines 2-11 of the '727 patent; column 4, lines 3-11 of the '343; column 7, lines 14-22 of the '502 and page 4, third paragraph, of the '849 patent. Giglia teaches the same type of fibers as claimed and the same particles including the size of such particles, column 2, lines 53-57 of the '727 patent; column 2, lines 54-58 of the '343; column 6, lines 33-37 of the '502 and page 3, third paragraph, of the '849 patent. Giglia teaches the use of particles either to adsorb toxic gases or as microorganisms control and teaches the use of activated carbon particles as the preferred particles. Even though Giglia does not teach the pore size of the paper as claimed, this property seems to be inherent to the paper taught by the reference, since they are made using the same process and using the same raw materials as claimed, or at least the minor modification to obtain the pore size in the range as claimed would have been obvious to one of ordinary skill in the art as an optimization of a result effective variable. Note that it has been held that "[T]he discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. *In re Antoine*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); *In re Aller*, 42 CCPA 824, 20 F.2d 454, 105 USPQ 233 (1995). "

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Rejection und Section 103:

6.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action: (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later unnecessary." In re Fout 675 F. 2d 297, 213 USPQ 532 (CCP A 1982); In re Siebentritt, 372 F.2d 566, 152 USPQ 618 (CCPA 1967). "

REMARKS

The Examiner has rejected claims 1-25 for the aforementioned grounds over the following references:

| <u>Patentee</u> | <u>Number</u> | <u>Referenced As</u> |
|-----------------|---------------|----------------------|
| Giglia et al. | 4,904,343 | '727 |
| Giglia | 4,929,502 | '502 |
| Giglia | EP 145849 | '849 |

Before discussing the above prior art references, the clarification of the microbiological interception enhancing agent of claims 8, 15, 21, 23, 25 and new claim 41 is discussed so as to characterize the clarification of the term in the claims. The instant application claims priority on several applications which claim the microbiological interception enhancing agent set forth at pages 13 to 17 and in 10/286,695 which is now issued as USP 6,835,311 and which is fully incorporated by reference at page 17, line 11-13 of the instant application. Claims 8, 15, 21, 23, 25 have been amended consistent with the disclosure in the instant application to include: "and includes a microbiological interception enhancing agent comprising a cationic material having a counter ion associated therewith when exposed to an aqueous biologically active metal salt solution forms the colloidal metal precipitate that precipitates onto at least a portion of the surface of at least some of the nanofibers and/or active agents." The prior art cited by the Examiner has not disclosed any integrated paper with the use of the novel microbiological interception enhancing agent set forth in claims 8, 15, 21, 23, 25, and 41 and such is not obvious over the prior art. The instant application discusses the benefits of being able to remove microbiological contaminants. Further, it is axiomatic that a novel microbiological interception enhancing component will enhance the stability and life of cellulosic papers, such as those generated with fibrillated Lyocell. Further, the use of the microbiological interception enhancing agent in an integrated paper with the additional active agents set forth in the claims is not taught or obvious over the three (3) Giglia references cited by the Examiner. Accordingly, it is respectfully submitted that claims 8, 15, 21, 23, 25, and 41 are allowable over the prior art cited by the Examiner.

The Examiner has carefully set forth the grounds for rejection over the three (3) Giglia under Sections 102 and 103, as set forth in the Official Action dated May 4, 2005 and as set forth above from the Official Action. The Examiner has characterized the fibers of the Giglia references as being of the size set forth in the instant claims. It is respectfully submitted that only the carbon particles are in the correct size range, since Giglia discloses that no more than 15% of the carbon fiber can be less than 1 micron and that no more than about 15% be over 100 micron. This does not permit an average diameter in Giglia as set forth in claim 1 of the instant application of less than 1000 nm. (See Giglia '727, column 3, lines 10-15). Accordingly the remaining 70 percent would have diameters above 100 microns. This would necessarily result in an average diameters greatly above 1 micron. Further, with the mixture fabric of Giglia have such a different mixture of fibers, it is not anticipated or obvious that the integrated paper of this invention with a mean pore size of less than or equal to about 2 microns could be formed. There is nothing in the three Giglia references disclosing the mean pore size formed from vastly different fiber diameter distributions.

In addition the Examiner's attention is drawn to claim 7 where the relationship of the fibers and particles is defined to have an asymmetric structure by different settling velocities. Giglia fails to teach this type of asymmetric structure for an integrated paper. This is further shown by looking at claims 1 and 4 of the instant application where the dramatically different diameters of the fibers and particles are claimed. In claim 1 the fibers have a diameter of less than 1000 nm (1000 nm equals one (1) micron) and in claim 4 the particles have an average particle size of about 1 micron to about 5000 microns.

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The Gilla three (3) prior art references are also limited to the used of carbon fibers and carbon particles adn does address teh use of nanofibers as claimer in the instant appliction and active agnets selected from the groug of metals, metal salts, metal oxides, alumina, silicates, ceramics, zeolites, diatomaceous earth, activated bauxite, fuller's earth, calcium sulfate, titanium dioxide, magnesia, magnesium hydroxide, magnesium oxide, manganese oxides, iron oxides, perlite, talc, clay, bone char, calcium hydroxide, calcium salts, or combinations thereof.

Claims 1-25 remain in this application and have been amended to correct distinguish the patents cited by the Examiner, as discussed above. Claims 25-40 have been cancelled. Applicant respectfully requests substantive examination and a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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Gary Warner
Registration No. 29220

KX Industries, L.P.
269 S. Lambert Road
Orange, CT 06477
203-799-9000 x277

CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that the foregoing document is being facsimile transmitted to the Commissioner of Patents, U.S. Patent & Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450.

Gary Warner

November 4, 2005

Name

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